Fig.1

EP 1 492 097 A2

218 ERROR CORRECTION/ADDITION CIRCUIT
INTERFACE OF PC, ETC

219 MODEM CONTROL CIRCUIT
217 DEMODULATION CIRCUIT
216 DATA REPRODUCTION PLL
223 GATE SIGNAL GENERATING CIRCUIT
224 CPU
JITTER DETECTION

220 MODULATION CIRCUIT

221 LASER DRIVE WAVEFORM GENERATING CIRCUIT

222 LASER DRIVE CIRCUIT

215 REPRODUCTION SIGNAL BINARY-CODING CIRCUIT

204 Fo/Tr/RF SIGNAL GENERATING CIRCUIT
Fo SIGNAL
Tr SIGNAL

205 Fo/Tr CONTROLLER

GAIN FIXED SIGNAL
CLOCK

209 WOBBLE PLL CIRCUIT
211 BIAS GENERATING CIRCUIT
214 LPP ADDRESS DETECTING CIRCUIT
LPP ERROR

208 WOBBLE SIGNAL BINARY-CODING CIRCUIT
210 AMPLITUDE DETECTING CIRCUIT
213 LPP DETECTING CIRCUIT

207 BPF
212 LPF

206 WOBBLE DETECTION DIFFERENTIAL AMPLIFYING CIRCUIT
227 LPP DETECTION DIFFERENTIAL AMPLIFYING CIRCUIT

229 AMPLITUDE DETECTION S/H CIRCUIT
AMPLITUDE DETECTION

225 WOBBLE DETECTION BALANCE ADJUSTMENT
226 LPP DETECTION BALANCE ADJUSTMENT

228 SW

230 AGC CIRCUIT

201
202
203

10

Fig.2

Fig.3A,3B,3F,3G : INCIDENT LIGHT AMOUNT SIGNAL ———
AMPLITUDE DETECTION SIGNAL − − − − −
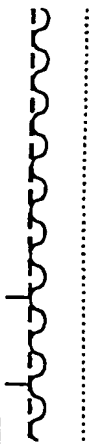
WHEN REPRODUCING
UNRECORDED TRACKS

WHEN RECORDING DATA

Fig.3A OUTPUT OF LPP DETECTION BALANCE
ADJUSTMENT CIRCUIT (TRACKING DETECTOR (A))

LASER OFF LEVEL
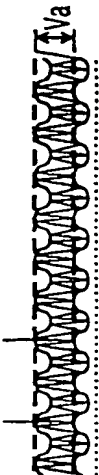
Fig.3B OUTPUT OF LPP DETECTION BALANCE
ADJUSTMENT CIRCUIT (TRACKING DETECTOR (B))

LASER OFF LEVEL
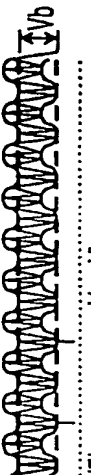Va=Vb

Fig.3C AMPLITUDE DETECTION SAMPLE
HOLD SIGNAL

Fig.3D LPF OUTPUT SIGNAL (SOLID LINE) AND LPP
DETECTION LEVEL (DOTTED LINE)
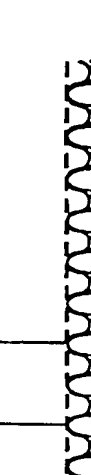
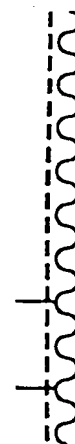**Fig.3E** LPP BINARY-CODED SIGNAL

Fig.3F OUTPUT OF WOBBLE DETECTION BALANCE
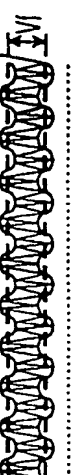ADJUSTMENT CIRCUIT (TRACKING DETECTOR (A))

LASER OFF LEVEL
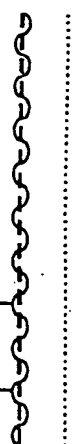
Fig.3G OUTPUT OF WOBBLE DETECTION BALANCE
ADJUSTMENT CIRCUIT (TRACKING DETECTOR (B))

LASER OFF LEVEL
Vl=Vg

Fig.3H SAMPLE/HOLD SIGNAL

Fig.3I OUTPUT OF WOBBLE DETECTION
DIFFERENTIAL AMPLIFYING CIRCUIT

Fig.3J OUTPUT OF BAND PASS FILTER

Fig.3K WOBBLE BINARY-CODED SIGNAL

Iva
Ivb
Ivl
Ivg

Fig.4

OUTPUT OF LPP DETECTION
BALANCE ADJUSTMENT CIRCUIT
(TRACKING DETECTOR A)

OUTPUT OF LPP DETECTION
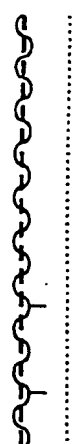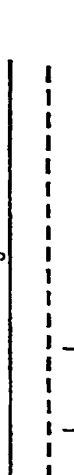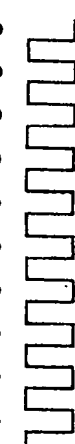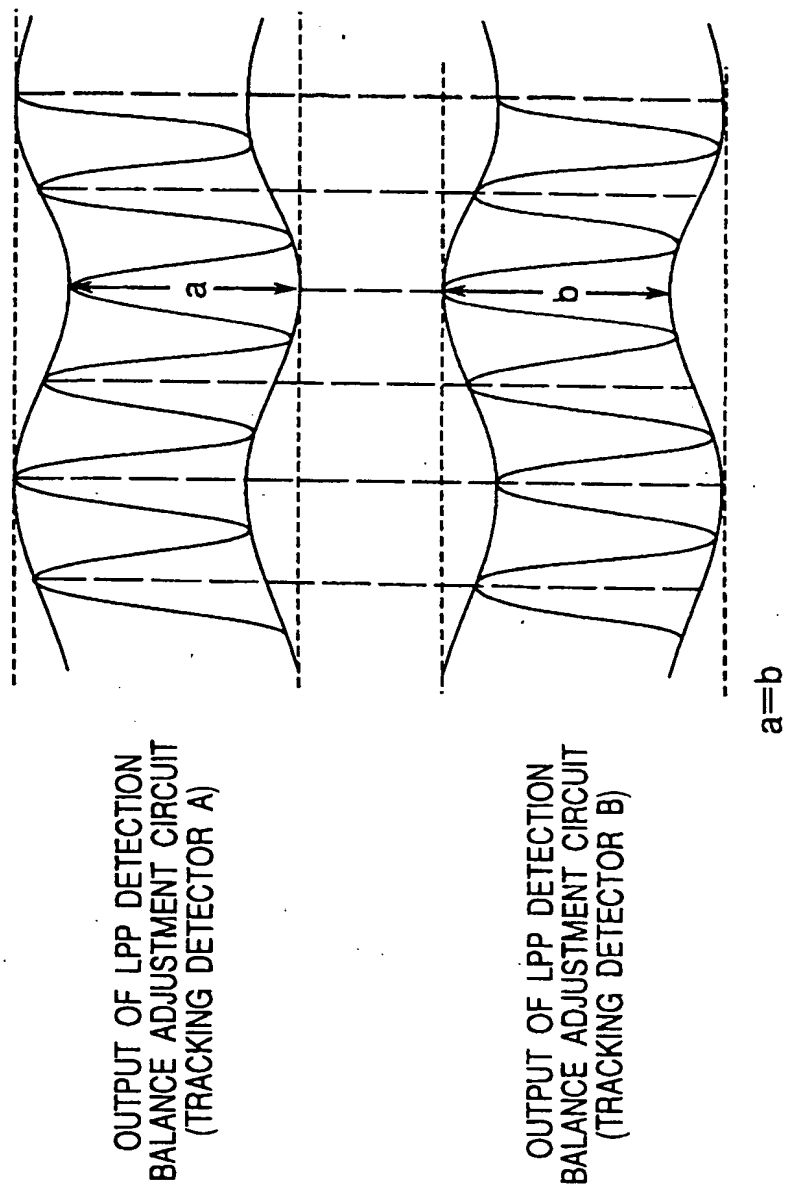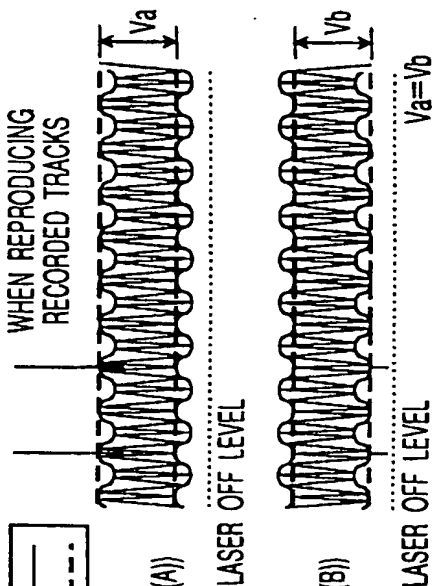BALANCE ADJUSTMENT CIRCUIT
(TRACKING DETECTOR B)

$a=b$

Fig.5A,5B : INCIDENT LIGHT AMOUNT SIGNAL ———
AMPLITUDE DETECTION SIGNAL - - - - - - -

WHEN REPRODUCING RECORDED TRACKS

Fig.5A OUTPUT OF LPP DETECTION BALANCE ADJUSTMENT CIRCUIT (TRACKING DETECTOR (A))

LASER OFF LEVEL

Fig.5B OUTPUT OF LPP DETECTION BALANCE ADJUSTMENT CIRCUIT (TRACKING DETECTOR (B))

LASER OFF LEVEL

$V_a = V_b$

Fig.5C AMPLITUDE DETECTION SAMPLE / HOLD SIGNAL

Fig.5D LPF OUTPUT SIGNAL (SOLID LINE) AND LPP DETECTION LEVEL (DOTTED LINE)

Fig.5E OUTPUT OF BAND PASS FILTER

Fig.5F WOBBLE BINARY-CODED SIGNAL

Fig.5G LPP BINARY-CODED SIGNAL

Fig.6

SIGNAL FROM
TRACKING DETECTOR →
→

WOBBLE DETECTION
BALANCE
ADJUSTMENT
~301

WOBBLE DETECTION
DIFFERENTIAL
AMPLIFYING CIRCUIT
~302

BPF
~303

WOBBLE SIGNAL
BINARY-CODING
CIRCUIT
~304

WOBBLE PLL
CIRCUIT
~305

CPU
~308

COUNTER
~307

CLOCK
GENERATOR
~306

60

Fig.7

SIGNAL FROM TRACKING DETECTOR

WOBBLE DETECTION BALANCE ADJUSTMENT ~401

WOBBLE DETECTION DIFFERENTIAL AMPLIFYING CIRCUIT ~402

BPF ~403

WOBBLE SIGNAL BINARY-CODING CIRCUIT ~404

WOBBLE PLL CIRCUIT ~405

CPU

COUNTER ~407

CLOCK GENERATOR ~406

408

413

BIAS GENERATING CIRCUIT

AMPLITUDE DETECTING CIRCUIT ~412

LPF ~411

LPP DETECTION DIFFERENTIAL AMPLIFYING CIRCUIT ~410

LPP DETECTION BALANCE ADJUSTMENT ~409

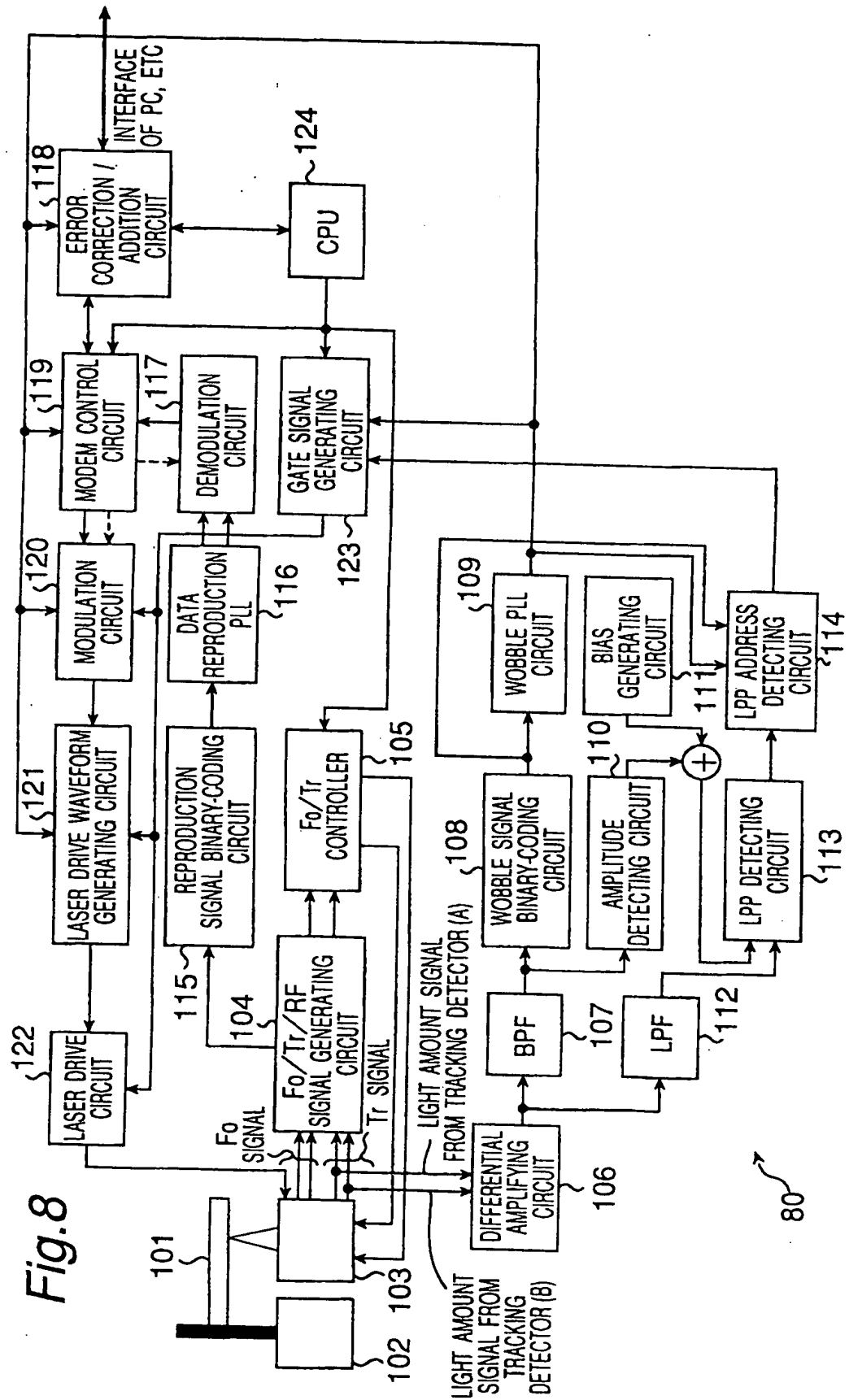LPP DETECTING CIRCUIT ~414

LPP ADDRESS DETECTING CIRCUIT ~415

70

Fig.8

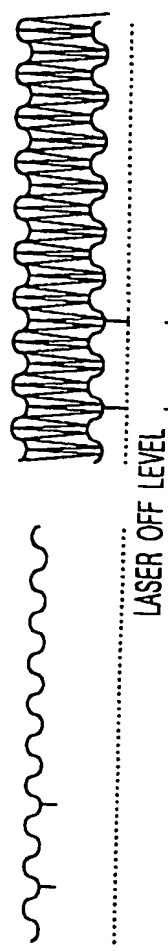Fig.9A INCIDENT LIGHT AMOUNT SIGNAL DETECTED BY TRACKING DETECTOR (A)

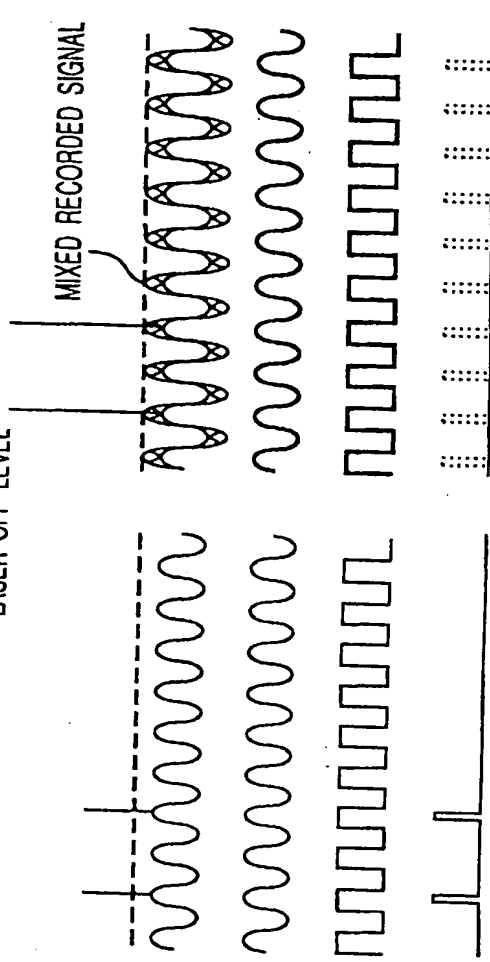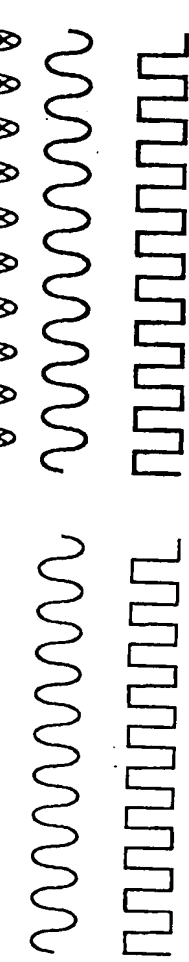Fig.9B INCIDENT LIGHT AMOUNT SIGNAL DETECTED BY TRACKING DETECTOR (B)

Fig.9C LPF OUTPUT SIGNAL (SOLID LINE) AND LPP DETECTION LEVEL (DOTTED LINE)

Fig.9D OUTPUT OF BAND PASS FILTER

Fig.9E WOBBLE BINARY-CODED SIGNAL

Fig.9F LPP BINARY-CODED SIGNAL

WHEN REPRODUCING

WHEN RECORDING

LASER OFF LEVEL

LASER OFF LEVEL

MIXED RECORDED SIGNAL